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ABSTRACT

An analysis of high vowel variation in Quebec French shows that the phenomenon can generally be accounted for in terms of stress and syllabic closure. However, it is also proposed that by positing underlying lax high vowels in the language, a more insightful analysis is achieved, suggesting that a process of high vowel tensing is occurring instead. This accounts for several facts that would otherwise appear to be highly implausible, e.g., laxed vowels in stressed closed syllables and lax vowels in open syllables in reduplicated forms. More generally, it is shown that in derivational affixation there is no independent motivation for morphological levels in French, and that an affixation process resembling level ordering is explicable in terms of extrametricality. In support of extrametricality, evidence from the differing behavior of two forms of the same suffix is presented, suggesting that this difference is phonological, not morphological. The discussion has implications for the question of levels in lexical phonology, with the evidence suggesting that French may have only one lexical level. Further research examining inflectional affixation and compounding is recommended to resolve the question more definitively. (MSE)

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High Vowel Variation in Quebec French

S.J. Hannahs

1. Introduction

1.1. Goals

In this paper I examine the phonological process of High Vowel Variation (HVV) in Quebec French. HVV is a process whose behavior, with regard to affixation, looks like the result of level ordering; however, I provide an analysis indicating that its behavior is actually due to extrametricality and the interaction of extrametricality and stress assignment. This evidence is important in dealing with the question of lexical levels in French, ultimately of importance for the theory of Lexical Phonology (cf. Kiparsky 1982, 1985; Mohanan 1986; and others) in deciding whether the number of levels is universally determined or language specific.

In this paper, I also take issue with the traditional assumption that the underlying high vowels of Quebec French are tense. Rather, I argue that they are lax and that the process in question derives tense high vowels from underlying lax high vowels. I show that this assumption has both theoretical and language-specific advantages.

1.2. The Facts

Quebec French has regular allophonic variation of the tense and lax high vowels shown in (1):

(1) [i ~ I, y ~ Y, u ~ U]

This variation results from the interaction between stress and syllable closure. Given word-final stress in French, it turns out that a high vowel appearing in a final (i.e. stressed) closed syllable is lax, as in (2), while a high vowel in a final (stressed) open syllable is tense, as in (3)[1].

(2) vite [vIt] 'quick'

(3) ami [ami] 'friend'

There are also cases in which high vowels may appear either tense or lax, i.e. in unstressed syllables in general, regardless of syllable closure. Thus, in (4) and (5) the vowel in question may be either tense or lax, although in (4) it is in a closed syllable, while in (5) it is in an open syllable.

(4) victoire [viktwar]/[vIktwar] 'victory'

(5) fini [fini]/[fIni] 'finished'

There is also a set of words in which a prefinal high vowel

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is obligatorily tense, contrary to what we have seen so far. Thus, in (6) through (9) the high vowel that surfaces is tense, not lax.

(6) vitesse [vitɛs] 'speed'

(7) douteux [dutoe] 'dubious'

(8) village [vilaž] 'village'

(9) couchette [kušɛt] 'cot'

What these words have in common is that they are bimorphemic and the high vowel in question is in the stem-final syllable. To further complicate the issue, however, attaching a suffix does not by itself mean that the high vowel in a stem-final syllable is tense rather than lax, e.g. (10) and (11), in which the vowel in question may be either tense or lax.

(10) commun-isme [komynIsm]/[komYnIsm] 'communism'

(11) électric-ité [elɛktrisite]/[elɛktrIsite] 'electricity'

In section 2, I examine the possibility of level ordering in analyzing these facts. Since this approach raises serious problems, I propose an alternative solution in section 3 relying on extrametricality and its interaction with stress.

2. High Vowel Variation and Levels

2.1. A Level-Ordered Account

Given examples (6)-(9) versus (10)-(11), it looks like a classic case of level ordering (cf. Kiparsky 1982, 1985; Mohanan 1986), i.e. where the different behaviors are attributed to affixation at different levels. In the following analysis I assume underlying tense vowels as is traditional (cf. Dumas 1976, 1981; Cedergren and Simoneau 1985; Prairie 1976), although I will show below that there are reasons to believe that the underlying high vowels are lax.

The rule of High Vowel Laxing (HVL) is subject to the constraint given in (12).

(12) HVL is
a) obligatory in a stressed closed syllable

b) prohibited in a stressed open syllable

c) optional elsewhere

Affixing the class of suffixes represented by (10)-(11) at level 1, the rule of stress assignment would apply at level 2, stressing the rightmost syllable. As will be shown below, there is also a later stress rule to ensure placement of phonetic accentuation. After syllabification, the rule of HVL would apply, presumably postlexiclly, since Structure Preservation is generally held to disallow introduction of allophones in the lexicon.

The derivation of this class of affix is shown in (13). (Stress is indicated by an underscored vowel.) The laxing of the vowel in the stem-final syllable being optional, either of the outputs shown may occur.

(13)	/k o m y n - i s m/	
Level 1	k o m y n i s m	affixation
Level 2	k o m y n <u>i</u> s m	stress assignment
	k o.m y.n <u>i</u> s m	syllabification
Postlexical		
	(Y) <u>I</u>	high vowel laxing
Output	[k o m Y n <u>I</u> s m] or [k o m y n <u>I</u> s m]	

In the case of the class of affixes represented by (6)-(9), affixation would occur at level 2 after stress assignment. I assume that stress would be maintained on the stem at least until HVL has applied. Prefinal stress must be erased, however, when phonetic stress is assigned, since there is no phonetic accentuation (e.g. secondary stress) on that syllable. Thus, postlexical HVL must be ordered before the assignment of phonetic stress and erasure of previously assigned stress. To account for the facts, I posit a rule of stress erasure which erases all but the rightmost stress. This derivation is shown in (14).

(14)	/v i t/ /-ɛ s/	
Level 1	v i t	
Level 2	v i̲ t	stress assignment
	v i̲ t ɛ s	affixation
	v i̲.t ɛ̲ s	syllabification
Post-lexical	N/A	high vowel laxing
	v i̲ t ɛ̲ s	stress assignment
	v i.t ɛ̲ s	stress erasure
Output	[v i t ɛ̲ s]	

While this approach accounts for the facts, it suffers from several drawbacks, including extrinsic rule ordering and, significantly, that the usual correlates to level ordering are missing, as will be seen below.

2.2. Correlates to Level Ordering

Typically when level ordering is proposed for a phonological process the levels on which the process occurs are posited on the basis of other, generally recognized morphological facts in the language. In affixation, for example, the behavior of specific classes of affixes may correlate well with etymology, e.g. the distinction between native and non-native in English (cf. Bloomfield 1933; Chomsky and Halle 1968; Aronoff 1976) or between Dravidian and Sanskrit in Malayalam (cf. Mohanan 1986). Another correlation for classes of affixes is whether they attach to words and stems or words alone (see Aronoff 1976, Scalise 1984). A third correlation typical in level-ordered analyses is the application of a set of phonological rules triggered by affixation, e.g. stress shift in English (see Chomsky and Halle 1968, and others).

While stress shift is not a possible diagnostic here, since French has fixed stress on the word-final syllable, other expected correlations raise serious problems. In (15) suffixes representative of the types seen in (13) and (14) are shown. The suffixes in (15)a are those which prohibit laxing of the high vowel in the stem-final syllable, and those in (15)b are suffixes which allow laxing of the high vowel in the stem-final syllable.

(15) a) Prohibit laxing		b) Allow laxing	
-esse	vitesse	-al/-el	musical
-eux/-euse	douteux	-isme	communisme
-et/-ette	couchette	-iste	communiste
-eur (qual.)	douceur	-ité	électricité
-age	village		

Although the behavior of these two sets of suffixes is different, there is no etymological motivation for positing levels. All of the suffixes in both sets are either from Latin or from Greek via Latin.

Looking at what they can attach to, there are suffixes in both sets which can attach to both stems and words, as shown in (16).

(16)	a)		b)	
Stem + Affix	aqu-eux	'watery'	anglic-iste	'Anglicist'
Word + Affix	bou-eux	'muddy'	social-iste	'socialist'

Given these observations, there appears to be no strong independent motivation for level ordering, at least not on the basis of traditionally accepted correlates to levels. Despite the fact that HVL in derived words would fall out nicely from assuming affixation on different levels, such an analysis requires an ad hoc separation of levels which cannot be motivated for French except by HVL, a circular argument.

3. High Vowel Variation and Extrametricality

3.1. Underlying High Vowels in Quebec French

In the analysis of HVV given below I make the untraditional assumption that the underlying high vowels in Quebec French are /I Y U/. At first glance this seems counterintuitive: many varieties of French have only tense high vowels, and the tradition in the literature on Quebec French has been to assume underlying tense high vowels (cf. Dumas 1976, 1981; Cedergren and Simoneau 1985; Prairie 1976), which has the advantage of allowing the same underlying representations as Parisian French. However, here it appears this is not as desirable as might be thought--assuming underlying lax high vowels sheds light on several otherwise inexplicable facts of Quebec French.

In the first place, in Quebec French there are a number of monomorphemic words and, more importantly, reduplicated forms in which a high vowel in a prefinal open syllable is usually lax. Thus, the monomorphemic words given in (17) and the reduplicated forms given in (18) are usually pronounced as shown (a tense vowel is still an option).

(17) a) midi [mIdzi] 'noon'

b) toupie [tUpi] 'top'

c) tribu [trIby] 'tribe'

d) souris [sUri] 'mouse'

(18) a) Mimi [mImi] a name

b) Fifi [fIfi] a name

c) toutou [tUtu] 'puppy-dog'

Assuming underlying tense vowels, there is no reason for the prefinal vowel to become lax. If, on the other hand, they are underlyingly lax, it is not surprising that they remain lax. Those cases in which tense vowels occur are probably conditioned by sociological factors such as prestige, rather than by phonological factors; in any case, tense vowels in these cases are optional, although lax vowels are usual.

More generally, it would be highly unusual for an underlying tense vowel to become lax in a stressed closed syllable, which is the implicit claim with forms like <u>vite</u> if the vowel is underlyingly tense. Assuming underlying lax vowels, however, it is not implausible that they should become tense in stressed open syllables, which is precisely what happens with forms like <u>ami</u>.

In addition, there is at least one word in which a prefinal high vowel in an open syllable is always lax, not tense: [bIsIk] 'bicycle'. Again, this would be odd if one assumes underlying tense vowels.

With the general phonological support to be gained from a different assumption, along with some language-specific simplification, I propose that the underlying high vowels of Quebec French are lax /I Y U/.

3.2. Extrametricality

The facts given in section 1 remain the same and the generalization to be drawn from them can be stated as in (19).

(19) High Vowel Tensing is obligatory in stressed open syllables and optional in unstressed syllables.

The problem still lies in accounting for derived forms like vitesse (see (6)-(9)). Rather than relying on level-ordered affixation, I propose that the surface forms are due to stress assignment and extrametricality. Specifically, I argue that the suffixes in question are extrametrical or, more precisely, that the final syllable of these suffixes is extrametrical (assuming the Peripherality Condition, see Harris 1983). This claim will be motivated in section 3.3, below. Referring to the final syllable of these affixes also allows reference to phonological rather than morphological constituents, i.e. syllable rather than affix. This will be important in deciding between level ordering and extrametricality.

On this account, there is a straightforward explanation for the difference in surface forms resulting from derivational affixation of affixes which are extrametrical and those which are not. This assumes a) a stress rule that stresses the rightmost visible syllable in a word, b) a rule of High Vowel Tensing which applies after extrametrical material has become available and syllabification has taken place, c) reapplication of the stress rule after the extrametrical material has become available, to ensure placement of surface accentuation, and d) a language-specific stress erasure rule erasing all but the rightmost stress.

In (20) a derivation is given for vitesse (cf. (14) above), in which the suffix -ɛs is shown as extrametrical.

(20)

Cycle 1	v I t(ɛ s)	
	v I t.(ɛ s)	stress assignment 1
Cycle 2	v I t.ɛ s	loss of extrametricality
	v I.t ɛ s	syllabification
	v i.t ɛ s	high vowel tensing
	v i.t ɛ s	stress assignment 2
	v i.t ɛ s	stress erasure
Output	[v i t ɛ s]	

This derivation shows vitesse entering the first cycle with the final (in this case only) syllable of the suffix extrametrical. Syllabification occurs, followed by stress assignment on the first cycle. As the word enters the second

cycle, extrametricality of the final syllable is lost. Resyllabification removes the coda from the first syllable, making it the onset of the second syllable. The high vowel in the stem, now in a stressed open syllable, is subject to High Vowel Tensing and becomes tense. Stress assignment applies again on the second cycle, stressing the rightmost syllable. Finally, stress erasure removes all but the rightmost stress from the word.

3.3 The suffix -tion/-ation

One final piece of evidence in support of an extrametrical account of High Vowel Variation in Quebec French comes from the suffix -tion and its related form -ation. Morphologically, this is a single suffix, i.e. the origin is the same for both forms, their meaning is the same, they attach to the same syntactic category--they are indistinguishable morphologically. If morphologically conditioned level-ordered affixation were responsible for the differences apparent in high vowels in stem-final syllables, there should be no difference in the behavior of words derived with -tion and those with -ation. They would presumably be attached at the same level.

However, -tion and -ation do behave differently, a fact which falls out from extrametricality, assuming peripherality of the extrametrical constitutent, and assuming that that constituent is the syllable. In words with -tion, the high vowel in the stem-final syllable remains tense, as in évolution [evolysjõ], absolution [absolysjõ], constitution [kõstitysjõ]; in words with -ation, the high vowel in the stem-final syllable may be lax, as in félicitation [felIsItasjõ] 'congratulations', obligation [oblIgasjõ]. Derivations are given in (21).

(21)	é v o l u-t i o n	o b l i g-a t i o n	
Cycle 1	e.v o.l Y (s j õ)	o.b l I.g a(s j õ)	stress 1
Cycle 2	e.v o.l Y s j õ	o.b l I.g a s j õ	loss of extram.
	e.v o.l Y. s j õ	o.b l I.g a.s j õ	syllabification
	e.v o.l y. s j õ	N/A	HV tensing
	e.v o.l y s j ɔ̃	o.b l I.g a.s j ɔ̃	stress 2
	e.v o.l y. s j ɔ̃	o.b l I.g a.s j ɔ̃	stress erasure
Output	[e v o l y s j ɔ̃]	[o b l I g a s j ɔ̃]	

If tensing of the high vowels were a matter of affixation of various suffixes at different levels, these facts would be inexplicable. Assuming extrametricality of the final syllable of

certain affixes, however, the explanation falls out from the fact that extrametricality is peripheral and the phonological shape of these two affixes differs in number of syllables.

4. Conclusion

In this paper I have shown that High Vowel Variation, i.e. the process traditionally referred to as High Vowel Laxing in Quebec French, can be accounted for generally in terms of stress and syllable closure. I have also shown, however, that we arrive at a more insightful analysis if we posit underlying lax high vowels in the language, thus suggesting that a process of High Vowel Tensing is occurring instead. This accounts for several facts that would otherwise appear to be highly implausible, e.g. lax vowels in stressed closed syllables and lax vowels in open syllables in reduplicated forms.

More generally, I have shown that in derivational affixation there is no independent motivation for morphological levels in French and that an affixation process which has the earmarks of level ordering is explicable in terms of extrametricality. In support of extrametricality I have provided evidence from the differing behavior of two forms of the same suffix that this difference is phonological, not morphological.

This discussion bears directly on the question of levels in lexical phonology: is there justification for positing that all languages have at least two levels, or are there languages which have only one level? This evidence seems to suggest that French may have only one lexical level. Further research, examining, for example, inflectional affixation and compounding, is needed to resolve this question more definitively.

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Notes

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1. Many of these examples come from Dumas (1977, 1981 and 1987). Others were collected in Montreal by the author or were found in the Sankoff/Cedergren Corpus of Montreal French housed at the Université de Montréal and at the Université du Québec à Montréal.

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